

ABSTRACT

[0153] The present disclosure concerns methods for producing and/or using molecular barcodes. In certain embodiments of the invention, the barcodes comprise polymer backbones that may contain one or more branch structures. Tags may be attached to the backbone and/or branch structures. The barcode may also comprise a probe that can bind to a target, such as proteins, nucleic acids and other biomolecules or aggregates. Different barcodes may be distinguished by the type and location of the tags. In other embodiments, barcodes may be produced by hybridization of one or more tagged oligonucleotides to a template, comprising a container section and a probe section. The tagged oligonucleotides may be designed as modular code sections, to form different barcodes specific for different targets. In alternative embodiments, barcodes may be prepared by polymerization of monomeric units. Bound barcodes may be detected by various imaging modalities, such as, surface plasmon resonance, fluorescent or Raman spectroscopy.